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ABSTRACT

This report discusses the outcomes of a study designed to assess two measures of family functioning for families with children with disabilities: the Family Support Scale (FSS) and the Family Resource Scale (FRS). The FSS is an 18-item questionnaire that measures the amount of perceived support given to the parents of young children with disabilities. Items generally consist of persons or agencies from which respondents could potentially receive emotional support. The FRS is a 30-item questionnaire that measures the adequacy of time and economic resources for families with small children. Items generally consist of objects and persons for which one would need time or monetary resources. The study used data from the Early Intervention Research Institute's longitudinal studies, which consist of 992 children and their families who were or are participating in a variety of different types of intervention programs. Results indicate that both of these measures were strengthened by proposed new scoring strategies. Both of the measures showed reasonably high internal consistency reliability coefficients, with reliability coefficients at least as high as those computed by the test's authors. However, the study found that FRS suffered from too many items that drew a limited response. (Contains 26 references and 14 tables.) (CR)

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ED 434 430

Running head: FAMILY SUPPORT AND RESOURCES

Family Support and Resources in Families Having Children with Disabilities

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Family Support and Resources in Families Having Children with Disabilities

Introduction

In 1986, Public Law 99-457 was passed and the stage was set for significant expansion of early intervention services for all young children with disabilities (Bailey, 1992). This law also emphasized the importance of family-based support and intervention. Where the focus of intervention had previously been on the child, the focus of intervention now became the family unit. Although many researchers and practitioners have recognized the value of this philosophical shift to a family-centered approach (e.g., Adams, 1992; Bailey, 1992; Dunst, 1985), they have cautioned that moving to a family-centered approach will require assessing the resources and needs of all family members, and not just those of the child. Unfortunately, we know little about the impact of effective early intervention programs on families using available assessment instruments, nor the relationship of these family assessment constructs to other outcomes (Bailey & Simeonsson, 1988).

Previous early intervention research has been primarily child focused and, consequently, information about the families of children involved in efficacy studies and the effects of early intervention on the family have been ignored (Casto & Lewis, 1984). Most commonly the only family information collected has been demographic. Such data clearly lacked the ability to describe salient aspects of family functioning identified in the literature as important for evaluating early intervention research, such as parental stress, family cohesiveness, and available support and resources (Casto & Mastropieri, 1986). Consequently, much of the information about family functioning that is potentially pertinent to intervention and outcome evaluation has not been assessed (Dunst, Snyder, & Mankinen, 1989). This lack of information about the family and the effects of

intervention on families has resulted, in part, because very few well tested, psychometrically sound measures of family functioning were available for use (Bailey & Simeonsson, 1988).

In response to the increased emphasis in early intervention on assessing family functioning, there has been substantial effort over the past 15 years to develop instruments that can measure important aspects of family functioning in families of children with disabilities. A number of these instruments are now widely used in conjunction with early intervention programs and include measures of global family functioning, as well as measures that focus on specific aspects of familial and parental functioning (e.g., cohesiveness, and perceptions of support and resources).

While the multitude of recently developed family measures have given researchers and clinicians a variety of instruments from which to choose, research on the quality of the data derived from these instruments has lagged behind. Virtually all of the family measures lack sufficient psychometric information concerning reliability and validity to support their current usage either to evaluate or structure early intervention programs, or to assess family needs (Bailey & Simeonsson, 1988). The two instruments examined in this paper were developed specifically for use with a population of families of children with disabilities, and the limited psychometric information on these instruments available in the literature has been based on extremely small, non-representative samples. Psychometric information on other instruments that have undergone more rigorous analysis, like those used here for concurrent validity purposes, is based on data collected primarily from samples of families whose children do not have disabilities. Thus, the interpretation of data from these instruments when used with families of children with disabilities has been questionable.

Considering the importance of information concerning family functioning in relation to the formation of the Individualized Family Service Plan (IFSP), the intervention goals, and the

subsequent intervention plan, further investigation of the psychometric properties of widely used measures of family functioning seems essential. The rationale for this need stems from two main sources. First, the Standards for Educational and Psychological Testing (American Psychological Association, 1985) require that the reliability and validity of measures be demonstrated for the specific purpose and with the population for which they are being used. Second, what is considered "abnormal" or problematic for a family without a child with a disability may be "normal" and adaptive for families with children having a disability (e.g., Fruge & Adams, 1992). For example, what might be termed "overprotectiveness" with a child without a disability, may be responsible parenting for a child with a disability.

This research then, sheds needed light on the psychometric properties of family assessment instruments. The specific purpose of this research was to conduct a full psychometric assessment of two measures of family functioning for families with children with disabilities: the Family Support Scale (FSS; Dunst, Jenkins, & Trivette, 1984), and the Family Resource Scale (FRS; Dunst & Leet, 1985) .

Design and Sample

Data for this study were available from the Early Intervention Research Institute's (EIRI) longitudinal studies. The EIRI data set consisted of 992 children and their families who were or are participating in a variety of different types of intervention programs. Table 1 provides information about this sample of children (for further information on the types of intervention programs and testing procedures see White et al., 1987).

As seen from the data in Table 1, children and families included in this large data set represent a wide variety of demographic characteristics, types of early intervention programs, types and

Table 1

Description of Sample (N = 922)

Variable	Percent	Variable	Percent
Demographic Characteristics			
Ethnicity of Child			
Caucasian	80	Hispanic American	2
African American	15	Asian American	1
Native American	2		
Maternal Age			
Mean = 30			
SD = 7			
Range = 15-50			
Maternal Education (years)			
Mean = 12.9			
Range = 4 - 17			
Maternal Marital Status			
Married	79	Divorced	5
Single	10	Widowed	1
Separated	6		
Income ($)			
Median = $22,500			
Number of Siblings			
Mean = 1.4			
SD = 1.4			
Range = 0 - 10			
Child Characteristics			
Child Age at Assessment (months)			
Mean = 27			
SD = 19			
Child Gender			
Male	60		
Female	40		
Type of Disability			
Intraventricular Hemorrhage	20	Cognitively Impaired	5
Developmental Delay	19	Multiple Disabilities	5
Down Syndrome	16	Cerebral Palsy	4
Language Impaired	8	Motor Impaired	3
Hearing Impaired	6	Health Impaired	3
Visually Impaired	5		
Developmental Functioning (DQ)			
70 and above	42	41-55	18
56-70	29	40 and below	11

severities of disabling conditions, and geographic locations across the United States. Thus, data from this sample can be used to generalize findings to most special populations. Because it is a relatively large data set of children who were participating in the types of programs typically offered, it provided an ideal opportunity to assess the psychometric soundness of measures of family functioning as they will typically be used in conjunction with assessing the efficacy of early intervention programs.

Description of Measures

The Family Support Scale is an 18-item questionnaire that measures the amount of perceived support given to the parents of young children with disabilities. Items generally consist of persons or agencies from which respondents could potentially receive emotional support. The FSS uses a Likert scale with responses ranging from "not at all helpful" to "extremely helpful." If an item, such as "Parent Groups," is not applicable for the respondent then nothing is marked and the response is judged "not applicable." The FSS measures support from family, friends, social groups, and professional service providers. Higher scores indicate greater amounts of support.

The psychometric characteristics of the FSS were first assessed using 139 families with children having a variety of disabilities by Dunst et al. (1984). The results of a factor analysis suggested a six factor solution. In later analyses, Dunst and Trivette (1986) revised the scale total to five. Concurrent validity was given as the correlation between the FSS and the Questionnaire on Resources and Stress (QRS) and the Parent-Child Interaction Rating Scale. Correlations with the QRS were statistically significant ($p < .05$) and ranged from -.14 to -.18. Despite the low correlations, the authors concluded that higher support was related to more integrated family units. In addition, the number of sources of support correlated with a measure of parent-child interaction.

The authors concluded that social support is related to variety in parent-child interactions, and overall child development.

Reliabilities for the FSS were reported in several forms. Internal consistency reliability for the total FSS was .77 and the split-half reliability was .75. Test/retest reliability was conducted over a one month interval for a total of 25 subjects. Reliability was .47 for the total score and an average of .41 for all items.

Several studies have been conducted that shed some appropriate light on the psychometric properties of the FSS. Burrell (1990), using a sample of 53 families with young children with disabilities, conducted a factor analysis of the FSS. Scale internal consistency reliability coefficients ranged from .42 to .73 and the total score alpha was .80. Burrell concluded that the structure reported by the original authors was confirmed, despite the fact that the factor loadings did nothing to confirm the original scoring procedures.

Dyson and Fewell (1986) assessed 15 families with children between 3 and 6 years of age with a variety of disabilities. Families with children with disabilities showed statistically significantly more support than the comparison group. This demonstrated a relationship between the level of perceived support and the presence of a child with disabilities in the home. In another study by Fewell (1984), 80 mothers of children with Down syndrome were assessed with the FSS and four other measures of family functioning. A factor analysis was conducted and the factors were labeled: Parents and Relatives, Spouse and Friends, Outside Helpers, and Social Groups. Internal consistency reliabilities for these four scales ranged from .66 to .82.

Dunst, Trivette, Hamby, and Pollock (1990) reported a small relationship between social support and child behavior characteristics. In this study, 47 mothers of young children with

disabilities responded to a number of questionnaires while the children were tested using the Carolina Record of Individual Behavior (CRIB; Simeonsson, 1981). However, the results indicated that the FSS was not at all related to any scales of the CRIB. The authors' conclusions were, unfortunately, based on analysis that used a combination of measures to represent the construct of support. Thus, there was no way to isolate conclusions about the validity of the FSS independent of the other measures of support.

Concurrent validity, computed as correlations with the other scales, indicated that the FSS correlated with the Family Social Support Scale (correlations ranged from .14 to .50) and a measure of maternal involvement in their child's education (correlations ranged from -.15 to -.42). The FSS did not correlate statistically significantly with a measure of religiosity or the Family Demands and Resources Scale. Overall, Dunst et al. (1984) found that the FSS did correlate with measures related to support, and failed to correlate with tests purporting to measure a variety of different constructs.

The Family Resources Scale is a 30-item questionnaire that measures the adequacy of time and economic resources for families with small children. Items generally consist of objects and persons for which one would need time or monetary resources. Responses are Likert scaled and range from "not at all adequate" to "almost always adequate." The FRS, in its original form, has four scales: general resources, time availability, physical resources, and external support, and yields scores for each of the scales along with a total score. Higher scores indicate more resources for the respondent's family.

The FRS was normed using a sample of 52 families with children having a variety of disabilities (Dunst & Leet, 1985). Scale structure was determined using factor analysis. Concurrent validity coefficients were computed with two other rating scales, developed by the authors

specifically for this purpose. This correlational analysis showed that the FRS correlated moderately with the variety of well being and resource items external to the FRS. Internal consistency reliability for the FRS total score was .94.

In addition to the original psychometric work, Dunst and Leet (1987) studied 45 preschool aged children with disabilities whose mothers completed the FRS, the Health and Well-Being Index, and the Personal Allocation Scale. The coefficient alpha reliability for the FRS was .92, the split-half reliability coefficient with a Spearman-Brown correction for length was .95, and the test-retest reliability correlation for a 2 to 3 month period was .52. The factor analysis produced an 8-factor solution. Correlations with the other measures showed statistically significant relationships. The authors concluded that family resources were positively related to the health and well-being of the parents as well as to their commitment to intervention. Finally, Burrell (1990), using a sample of 53 families with young children with disabilities, computed internal consistency reliability coefficients and reported an alpha of .91 for the total FRS score. No other psychometric investigations were conducted.

Methods And Results

The methodologies used in this study comprise a means of determining scale structure and establishing the three main indices of test usefulness: normative data; reliability; and validity. Figure 1 shows a flow chart of the data analyses. Few missing items existed in the entire data set, however, those that were encountered were handled in the same manner as by the test creators (see Taylor, 1995). Thus, there was comparability between analyses.

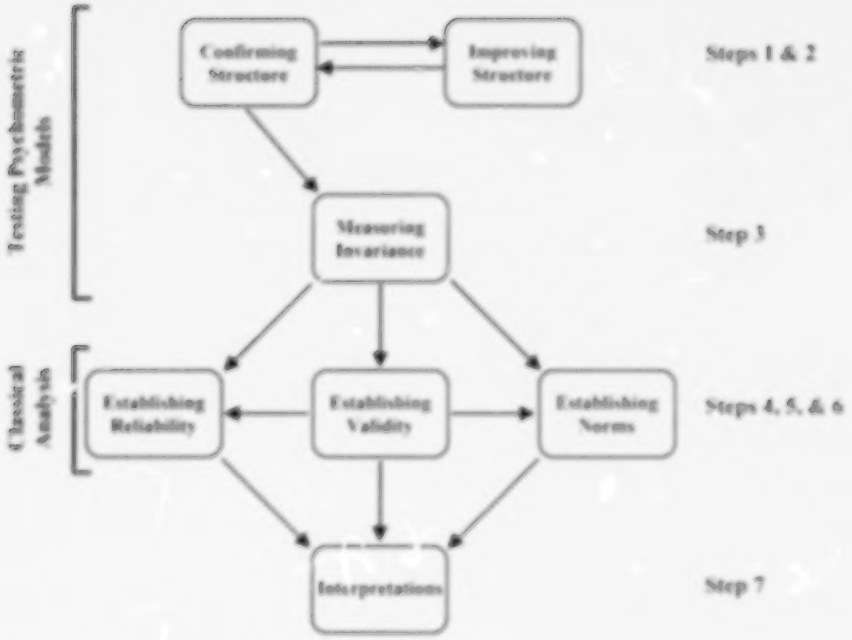

Figure 1. Flowchart of analysis procedures.

Confirming Structure

To confirm the reported structure, a path analysis using LISREL (Joreskog & Sorbom, 1989) was conducted on a random half of the 922 subjects. The "fit" of the data to the model was evaluated using a chi-square statistic which measured the error in the model. In addition, a goodness of fit index (GFI) provided by LISREL was also used to guide the process of structure confirmation.

The Family Support Scale - The results of this analysis indicated that the factor structure reported by the authors of the FSS did not fit the EIRI data. Several problems were evident. The path analysis solution for the FSS produced a very high chi-square value of 2,298.51 with 135 degrees of freedom ($p < .001$) which indicated a substantial amount of error in the model. The accompanying goodness of fit index of .69 was low. From these figures, it was determined that the original authors' model for the FSS should be reexamined.

The Family Resource Scale - The authors' model for the FRS also failed to fit the EIRI data. The solution for the FRS model produced a chi-square value of 5,338.50 with 391 degrees of freedom ($p < .001$). The accompanying goodness of fit index of .81 was reasonable, but could be improved on. From these figures, it was determined that the original authors' model for the FRS should also be reexamined.

Improving Structure

Factor analytic techniques were used to investigate alternative structures that were a more appropriate fit with the data (Gorsuch, 1983). A principal components analysis was conducted to identify items that were not contributing to the instrument. Any items showing weak communalities ($\leq .20$) were removed and the analysis repeated. Both orthogonal (uncorrelated) and oblique (correlated) factor rotations were investigated. When the "best" structure was identified, it was confirmed using the techniques outlined in the previous section. The "best" fit, as defined by reliabilities and goodness of fit indices (GFI), was adopted for the rest of the psychometric processes.

The Family Support Scale - The factor loadings ($\geq .30$) for the final factor analysis of the FSS are presented in Table 2. Item 16, "School/daycare center," was dropped because the vast majority of these families did not have a child old enough to attend school. In addition, factor loadings were low and reflected the lack of communality in this item. Item 8, "My own children," was dropped, first because factor loadings were low, and second, because very young children with disabilities did not provide the kind of support addressed in the other FSS items. Since many of the families only had the one child (27%), or had just one or two children (63%, with both being very young), this item did not share common variance with other items, or the test as a whole. In fact, item 8 correlated significantly with the number of children in the home ($r = .37$). This suggested that for

Table 2

Factor Loadings for the FSS Using Principle Components Extraction with an Oblique Rotation

	Familial	Spousal	Social	Professional
My parents	-.777			
My relatives	-.755			
Spouse's parents		-.819		
Spouse's relatives		-.805		
Spouse		-.732		
Spouse's friends		-.485	.496	
Other parents			.782	
My friends			.712	
Parent groups			.626	
Social groups			.575	
Church			.534	
Co-workers			.463	
Professional helpers				.738
Early intervention services				.692
Professional agencies				.643
Family or child's physician				.339

this population, item 8 was measuring more, the number of older non-disabled children in the home and not social support from the respondents' children.

Table 2 contains a breakdown of the items by scale. Four scales were extracted and designated: Familial Support, Spousal Support, Social Support, and Professional Support. These scales were quite clear in their content. This and the consistently high loadings provided evidence that this was the best model for the FSS with this population. Notice that there was only one double loading (item 7, "Spouse's friends"). This item was thus used to score both spousal and social

support. The factor correlation matrix indicated that these factors were related only slightly; however, an oblique rotation provided the simplest solution.

Confirmation of the new structure showed a tremendous reduction in model error (chi-square of 689.65 with 97 degrees of freedom) and a dramatic increase in goodness of fit (GFI of .91). Although the error in the model was still statistically significant, the new structure was far more parsimonious, and showed far greater validity than the original for this population. Scoring the FSS was accomplished by summing the Likert values for the items in each scale.

The Family Resource Scale - The factor loadings ($\geq$ .30 or the highest loading for that item) for the final factor analysis of the FRS are presented in Table 3. Items 3 ("Money for necessities") and 7 ("Money for monthly bills") were dropped to clarify the factor, and because the FRS, without these items, became a uniform list of specific sources of expense, either of time or money.

Three factors were extracted: time resources; monetary resources for necessities; and resources for monetary extras. Interestingly, "Someone to talk to" and "Babysitting" loaded on the time resources scale. Thus, having someone to talk to was correlated with having time resources. Also, having adequate babysitting resources provided more time resources. An additional interesting finding of this analysis was that medical, dental, and child care all loaded on extras. That is, the perception that adequate resources existed for these items was related to the perception that resources were adequate for extras like vacations, entertainment, and savings.

Three items loaded on two scales, resources for necessities and resources for extras. These three items were "Clothes," "Toys for children," and "Dependable transportation." This classification does not stretch the imagination. It is possible to perceive any of these items as both

necessities and extras. Finally, the factor correlation matrix showed high correlations between resources for extras and both the other scales.

Table 3

Factor Loadings for the FRS Using Principle Components Extraction with an Oblique Rotation

	Time	Necessities	Extras
Time for spouse	-.839		
Time for family	-.801		
Time to keep in shape	-.748		
Time to socialize	-.739		
Time for self	-.671		
Time for children	-.663		
Time for sleep/rest	-.626		
Someone to talk to	-.512		
Babysitting	-.367		
Plumbing		.773	
Heat		.717	
Furniture		.611	
House or apartment		.602	
Food		.552	
Clothes		.476	.305
Toys for children		.402	.323
Dependable transportation		.383	.330
Telephone		.351	
Money to save			.852
Travel/vacation			.778
Money for entertainment			.737
Money for self			.737
Money for special equipment			.568
Medical care			.542
Dental care			.520
Good job for self or spouse			.493
Public assistance			.462
Child care/day care			.210

Confirmation of the new structure for the FRS also showed a tremendous reduction in model error (chi-square of 2,178.52 with 344 degrees of freedom) and a minor increase in goodness of fit (GFI of .85). Again, although the error in the model was still statistically significant, the new structure was far more parsimonious, and showed greater validity than the original for this population. Scoring for the FRS was accomplished by summing the Likert values for items in each scale.

Measuring Invariance

Once the final structure of the measure was identified, the stability, or invariance, was investigated using a two-group confirmatory model. In this procedure, the two groups were the random halves of the sample. Covariance matrices for all measured variables in each group were computed and compared. Models for the two groups were tested independently, then simultaneously. The difference in chi-squares, with its associated probability level was used to confirm the reliability of the scale structure for multiple samples.

The process of measuring invariance was consistent with both measures. The results of these path analyses indicated that in each case, the models were invariant and probability values for the chi-square differences were all above .90. Although this was not unexpected for these sample sizes, the path values for each model comparison were strikingly similar.

Establishing Reliability

Table 4 presents the coefficient alpha reliabilities for the total scores and scale scores of both measures of family functioning. Reliabilities for the FSS scales range from .60 to .76 with an alpha of .80 for the FSS total score. The low scale reliabilities reflected the small number of items in each

Table 4

Internal Consistency Reliability Coefficients for the FSS and the FRS

Familial Support	(2 items)	.65
Spousal Support	(4 items)	.75
Social Support	(7 items)	.76
Professional Support	(4 items)	.60
Total FSS	**(16 items)**	**.80**
Time Resources	(9 items)	.88
Resources for Necessities	(9 items)	.81
Resources for Extras	(13 items)	.89
Total FRS	**(28 items)**	**.92**

scale. The total alpha, which was higher than the .77 reported by Dunst et al. (1984) demonstrated a reasonable internal consistency for this type of measure.

Reliability coefficients for the FRS were much higher, ranging from .81 to .89 for the three scales and .92 for the total score. This was no higher than those reported by the authors, but it did demonstrate strong internal consistency.

Establishing Norms

The normative data are presented in Table 5, which reports means, standard deviations, minimums, and maximums for each scale. A full range of scores was represented for each item and scale of the FSS. At the item level, the highest rated sources of support came from the respondents' spouse, parents, professional helpers, and family physician. The lowest rated sources of support came from parent groups, social groups, and the respondents' co-workers.

Table 5

Normative Information for the FSS and the FRS

	Mean	(SD)	Min	Max
Familial	4.21	(2.4)	0	8
Spousal	6.90	(4.1)	0	16
Social	7.88	(5.5)	0	28
Professional	8.06	(3.9)	0	16
FSS Total	**25.86**	**(10.7)**	**0**	**64**
Time Resources	32.68	(7.3)	9	45
Necessities	41.41	(4.5)	21	45
Extras	50.23	(10.2)	19	65
FRS Total	**111.20**	**(17.5)**	**49**	**140**

Normative information for the FRS showed that the respondents in this sample perceived adequate resources for most of the items. The items in which respondents perceived the least adequacy of resources were money to save, and vacations. Perceived resources for every item for this sample were on average 3.97 on the Likert scale (maximum of 5) and represented a response of "Usually adequate." Despite the complete range of responses, a ceiling effect caused resultant correlations to diminish, and reliability coefficients to increase. Thus, relationships that may have existed were vitiated by this restriction of range, and the computed reliability of the necessities scale and the total FRS were artificially inflated.

Establishing Validity

Concurrent validity coefficients were represented by correlations with other tests hypothesized to measure constructs that both overlapped (convergent validity) and did not overlap (divergent validity) with the test construct measured. The additional measures of family functioning were the

Parenting Stress Index (PSI; Abidin, 1990), the Family Adaptability and Cohesion Evaluation Scales III (FACES; Olson, Portner, & Lavee, 1985), and the Family Inventory of Life Events and Changes (FILE; McCubbin, Patterson, & Wilson, 1983). The measure of child development was the Battelle Developmental Inventory (BDI; Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984). A complete description of these measures is contained in Taylor (1995).

It should be noted that most of the correlation coefficients reported here were statistically significant. The large sample size provided enough analytic power to eliminate statistical significance as an important consideration.

Concurrent Validity Within Measures

The Family Support Scale - Table 6 presents correlations between the different scales and total score of the FSS. These correlations were all positive and demonstrated moderate to high correlations between scales. The highest relationship between scales was with social and spousal support ($r = .51$). Social support correlated the highest with the FSS total score ($r = .85$); thus, it best signified the overall construct being measured by the FSS.

Table 6

Concurrent Validity Correlations Among FSS Scales

	Family Support	Spousal Support	Social Support	Pro Support	**Total Support**
Familial Support	1.00				
Spousal Support	.28	1.00			
Social Support	.35	.51	1.00		
Professional Support	.21	.23	.41	1.00	
Total Support	**.56**	**.70**	**.85**	**.68**	**1.00**

The Family Resource Scale - Table 7 provides the correlations between the different scales and the total score of the FRS. These correlations were also all positive and were extremely high. As would be expected, the highest correlation was between the two monetary scales (r=.75). All three scales of the FRS correlated very highly with the FRS total score.

Table 7

Concurrent Validity Correlations Among FRS Scales

	Time	Necessities	Extras	**Total Resources**
Time Resources	1.00			
Necessities	.48	1.00		
Extras	.62	.75	1.00	
Total Resources	**.84**	**.78**	**.93**	**1.00**

Concurrent Validity Across Measures

Table 8 shows the relationship between the FSS and the FRS. Correlations were all positive and moderate ranging from .06 to .30. Spousal support related the highest with resources, indicating the fact that intact spousal relationships implied better resources. This was not unexpected. Each of the resource scales correlated similarly to support, and overall the two measures correlated at .29.

Table 9 presents the relationship between the FSS and the PSI, FACES III, and the FILE. All of the correlations with the PSI were negative, and indicated minor relationships. This negative relationship indicated that increase in support was mildly related to a decrease in stress. Among second order scales (see Taylor, 1995), family and spousal support was moderately related to social isolation (r = -.21 and -.25 respectively). As would be expected, spousal support was related to

Table 8

Concurrent Validity Correlations Between FSS and FRS

	Family Support	Spousal Support	Social Support	Pro Support	**Total Support**
Time Resources	.17	.25	.25	.08	**.26**
Necessities	.11	.23	.17	.06	**.20**
Extras	.13	.28	.25	.08	**.26**
Total Resources	**.16**	**.30**	**.27**	**.09**	**.29**

Table 9

Concurrent Validity Correlations Between the FSS and the PSI, FACES III, and the FILE

	Family Support	Spousal Support	Social Support	Pro Support	**Total Support**
PSI					
Total Child Stress	-.08	-.19	-.17	-.02	**-.16**
Total Parent Stress	-.15	-.26	-.25	-.10	**-.27**
Total PSI	**-.14**	**-.26**	**-.24**	**-.07**	**-.25**
FACES III					
Perceived Cohesion	.07	.27	.21	.11	**.24**
Ideal Cohesion	-.03	.15	.08	.07	**.11**
Child Empowerment	.00	.06	.15	.06	**.11**
Family Leadership	-.01	.10	.10	.05	**.10**
Change	.06	.09	.12	.08	**.13**
FILE					
Total FILE	**.00**	**-.13**	**-.04**	**.04**	**-.04**

spousal relationship (r = -.38) and social support was related to social isolation (r = -.29). Professional support was not related strongly to any scale of the PSI. As for the child related stress scales, stress due to child temperament related the highest with the FSS. Overall, the FSS and the PSI total scores correlated moderately (r = -.25) with the FSS correlating most highly with parent related stress (r = -.27) and the PSI relating most highly with spousal and social support (r = -.26 and -.24, respectively).

The correlations between the FSS and the FACES III were all relatively small, the notable exception being the correlation between perceived cohesion and spousal and social support (r=.27 and .21 respectively). Thus, more spousal and social support related to more perceived family cohesion. The low correlation with family support may be attributed to the fact that the FACES III asked about the respondent's current family (spouse and children), whereas the family support scale items inquired about the respondent's parents and other relatives.

The correlations between the FSS and the FILE, in general, were nearly zero. The notable, and logical, exceptions were the spousal and separation scales of the FILE and spousal support (r = -.24 and -.20, respectively). The overall correlation between the two measures was -.04.

Table 10 shows the correlations between the FRS and the PSI, FACES III, and the FILE. The correlations between the FRS and the PSI were all negative. Thus, higher levels of resources related to lower stress levels. Time resources correlated the most with the PSI in general, and very highly with parent related stress (r = -.51) specifically. Within the second order scales, time resources correlated most with child ability (r = -.29), parents' restriction of role (r = -.45), spousal relationship (r = -.43), social isolation (r = -.44), and parent health (r = -.34). The only low correlation with time resources was with stress related to parent education.

Table 10

Concurrent Validity Correlations Between the FRS and the PSI, FACES III, and the FILE

	Time	Necessities	Extras	**Total Resources**
PSI				
Total Child Stress	-.30	-.20	-.22	**-.28**
Total Parent Stress	-.51	-.30	-.37	**-.46**
Total PSI	**-.47**	**-.29**	**-.34**	**-.43**
FACES III				
Perceived Cohesion	.34	.32	.35	**.39**
Ideal Cohesion	.05	.22	.13	**.13**
Child Empowerment	.05	.09	.08	**.09**
Family Leadership	-.04	.03	-.02	**-.02**
Change	-.07	-.05	-.09	**-.09**
FILE				
Total FILE	**-.41**	**-.21**	**-.34**	**-.39**

The monetary resources scales of the FRS correlated most with the PSI parent education scale (r = -.29 for necessities and r = -.33 for extras), and the social isolation scale (r = -.28 for necessities and r = -.35 for extras). All other correlations were between -.12 and -.29. Overall, the two measures correlated at -.43 with resources correlating most with parent related stress (r = -.46), and the PSI total relating most with time resources (r = -.47).

Correlations between the FRS and the FACES III adaptability scales were basically zero. Perceived cohesion did correlate positively with all of the FRS scales (correlations ranged from .32

to .35 for the scales and .39 with the FRS total). This indicated that more family cohesion was related to more resources.

Correlations between the FRS and the FILE were, with the exception of the death items of the FILE, all negative. This indicated that more life events and changes were related to less time and monetary resources. Time resources were most highly related to events associated specifically with the respondent (r = -.46), and family conflict (r = -.46). The monetary resources, specifically resources for extras, were most highly related to debt (r = -.40), finance (r = -.27), family events (r = -.32), events related to a spouse (r = -.28), and family conflict (r = -.30). Correlations with the necessities scale were similar in pattern, but lower in magnitude. Overall, the two measures correlated at -.39.

Correlations with Child and Family Characteristics

Tables 11 and 12 present correlations between each family measure and a variety of demographic variables. Child gender was also coded as a dichotomy, with male being 1 and female being 0. Maternal education was coded in years of education received. Marital status was coded as a dichotomy, with married being 1 and single, separated, divorced, and widowed being 0. Family income was partitioned into 11 categories and treated as continuous, and family intactness was a dichotomy, with two parents in the home considered intact.

The Family Support Scale - Correlations between the FSS and the family demographic variables are presented in Table 11. Familial support correlated most with variables that indicated the age of the family: child age (r = -.13), maternal age (r = -.17), and the number of children in the family (r = -.14). These negative correlations indicated that the older the family, the less the perceived, or perhaps even needed support from parents and other relatives.

Table 11

Concurrent Validity Correlations for the FSS with Demographic Variables

	Family Support	Spousal Support	Social Support	Pro Support	**Total Support**
Child Variables					
Child Gender	.03	.00	-.01	.04	**.02**
Child Age	-.13	-.06	-.06	-.05	**-.09**
Family Variables					
Maternal Age	-.17	.03	.06	-.02	**-.01**
Maternal Education	.03	.16	.25	.02	**.18**
Maternal Marital Status	-.07	.43	.08	-.02	**.15**
Family Income	-.03	.30	.21	.01	**.19**
Family Intactness	-.10	.41	.07	-.03	**.13**
Number of Adults in Home	.05	.10	-.06	-.06	**.00**
Number of Children in Home	-.14	-.03	-.06	-.03	**-.10**

Table 12

Concurrent Validity Correlations for the FRS with Demographic Variables

	Time	Necessities	Extras	**Total Resources**
Child Variables				
Child Gender	.09	.05	.06	**.08**
Child Age	-.03	.02	.01	**.00**
Family Variables				
Maternal Age	-.02	.11	.14	**.09**
Maternal Education	.00	.26	.30	**.21**
Maternal Marital Status	-.01	.25	.21	**.15**
Family Income	.04	.42	.48	**.36**
Family Intactness	.00	.23	.20	**.15**
Number of Adults in Home	.06	.09	.07	**.07**
Number of Children in Home	-.14	-.13	-.13	**-.14**

Spousal support related best to economic as well as marital status variables. The economic variables most related to spousal support were maternal education (r = -.16) and family income (r = -.30). The aforementioned variables were most certainly interrelated in that more education related to higher income and more enduring marriages. These positive correlations indicated that higher income and more education related to more perceived spousal support. The marital status variables that most related to spousal support were: maternal marital status (r = -.43) and family intactness (r = -.41). Thus, married mothers and intact families were related to higher perceived spousal support.

Social support also related to economic variables (maternal education [r = .25] and family income [r = .21]). These results indicated that more education, a better job, and more income all related to higher levels of social support. The professional support scale failed to correlate with any of the demographic variables. Overall, the FSS correlated mostly with education, income, and marital status.

The Family Resource Scale - Table 12 shows correlations between the FRS and the demographic variables. Time resources failed to correlate strongly with any demographic variable. One exception was the mild negative correlation with the number of children in the home (r = -.14). This indicated that the more children in the home the less perceived time resources.

The monetary resource scales correlated with a variety of economic variables. These relationships were stronger for the resources for extras scale. The variables most correlated with extras were maternal education (r = -.30) and family income (r = -.48). These positive relationships indicated that more education and higher income were related to the perception of more monetary resources.

The only places where relationships between demographics and the necessities scale were higher than between demographics and the extras scale were on child ethnicity (r = -.28) and maternal marital status (r = -.25). This correlation indicated that married mothers perceived more monetary resources. Overall, the FRS correlated most with education and income variables.

Correlations with Child Functioning

The Family Support Scale - Table 13 shows the correlations between the FSS and the BDI. The family, spousal, and social support scales did not correlate with any of the BDI scales. The professional support scale, however, did correlate negatively with all of the BDI scales. This indicated that lower child functioning was related to more professional support. The strongest relationships with professional support were gross motor (r = -.28), fine motor (r = -.20), motor total (r = -.27), and cognition (r = -.20). Despite an overall correlation of -.03 between these measures, the professional support scale correlated mildly (r = -.18) with the BDI total, and the motor scales related most to the FSS total.

The Family Resource Scale - Table 14 presents the correlations between the FRS and the BDI. All of the correlations in this table were positive. This indicated that more resources, both time and monetary, were related to higher child development. Time resources correlated most highly with social development (r = -.13) and adaptive behavior (r = -.13). Likewise, resources for necessities correlated most highly with social development (r = -.17) and adaptive behavior (r = -.14). Resources for extras correlated between .10 and .18 for all of the BDI scales, but, like the other two scales of the FRS, resources for extras correlated the strongest with social development (r = -.18) and adaptive behavior (r = -.16).

Table 13

Correlations Between the FSS and Battelle Developmental Inventory Developmental Quotients for Children at Least 12 Months of Age

	Family Support	Spousal Support	Social Support	Pro Support	**Total Support**
Personal/Social	**.05**	**.06**	**.08**	**-.10**	**.03**
Adaptive Behavior	**.04**	**.03**	**.03**	**-.18**	**-.03**
Motor Total	**-.04**	**.01**	**-.06**	**-.27**	**-.13**
Gross Motor	-.03	.01	-.05	-.28	**-.13**
Fine Motor	-.04	.00	-.05	-.20	**-.10**
Communication Total	**-.02**	**.07**	**.05**	**-.12**	**.00**
Expressive	-.02	.03	.04	-.13	**-.02**
Receptive	.00	.11	.07	-.08	**.04**
Cognition	**-.02**	**.06**	**-.02**	**-.20**	**-.06**
Development Total	**.01**	**.06**	**.03**	**-.18**	**-.03**

Table 14

Correlations Between the FRS and Battelle Developmental Inventory Developmental Quotients for Children at Least 12 Months of Age

	Time	Necessities	Extras	**Total Resources**
Personal/Social	**.13**	**.17**	**.18**	**.19**
Adaptive Behavior	**.13**	**.14**	**.16**	**.17**
Motor Total	**.07**	**.08**	**.11**	**.10**
Gross Motor	.07	.06	.11	**.10**
Fine Motor	.08	.11	.11	**.11**
Communication Total	**.08**	**.08**	**.13**	**.12**
Expressive	.07	.07	.10	**.10**
Receptive	.09	.07	.13	**.12**
Cognition	**.06**	**.10**	**.14**	**.12**
Development Total	**.12**	**.13**	**.17**	**.16**

Overall, the relationship between the BDI and the FRS total was very similar to that of the resources for extras scale, with the largest correlation coefficients being with social development (r = -.19) and adaptive behavior (r = -.17), and all other correlations being above .10. Not surprisingly, the BDI total correlated best with the resources for extras scale (r = -.17), and the FRS and BDI totals correlated at .16.

Conclusions

With the emphasis of family involvement with early intervention programs and the call for evaluation of family functioning as part of the intake and IFSP procedures, this investigation of the psychometric properties of these widely used measures of family functioning adds substantially to the knowledge base. The conclusions that can be drawn from the results of these analyses are as follows.

First, both of these measures were strengthened by the new scoring strategies suggested in this research. The final models tested using LISREL produced models with less unexplained variance than those proposed by the original authors. It is suggested that future users of these measures with this type of population, employ the scoring procedures described in this research. Second, both of these measures showed reasonably high internal consistency reliability coefficients. In fact, the reliability coefficients computed in this study were at least as high as those computed by the test authors. Finally, and specifically, the FRS suffered from too many items that drew a limited response. This diminished its usefulness, and, in fact, only two of the scales, time resources and monetary resources for extras, seemed valuable.

This research has shown a glimpse of the inner workings of a model of family functioning and its relationship to child functioning. A next step would be to continue examining the relationships

observed in this study. A great deal of work investigating the character and dynamics of family functioning needs to be conducted. The use of these measures provides a core of assessment essential to the execution of this task. Future researchers should continue with correlational research designs to provide greater insight into the nature of family functioning and its impact on child development.

REFERENCES

Abidin, R. R. (1990). Parenting Stress Index-manual. Charlottesville, VA: Pediatric Psychology Press.

Adams, J. (1992). Family-Centered care: Projects and products, an overview of relevant programs and materials from special projects of regional and national significance (SPRANS/MCHIP). St. Paul, MN: The Exchange Pathfinder Resources, Inc.

American Psychological Association, American Educational Research Association, & National Council on Measurement in Education. (1985). Standards for educational and psychological testing. Washington, DC: American Psychological Association.

Bailey, D., Jr. (1992). Current issues in early intervention. In F. H. Bess & J. W. Hall, III (Eds). Screening Children for Auditory Function. Nashville, TN: Wilkerson Press.

Bailey, D. B., & Simeonsson, R. J. (1988). Family assessment in early intervention. Columbus, OH: Merrill Publishing.

Burrell, B. (1990). The child abuse potential of mothers of young children with handicaps and mothers of young children without handicaps: Correlates and comparisons. Unpublished dissertation, University of New Orleans, New Orleans, LA.

Casto, G., & Lewis, A. (1984). Selecting outcome measures in early intervention. Journal of the Division for Early Childhood, 10(2), 118-123.

Casto, G., & Mastropieri, M. A. (1986). The efficacy of early intervention programs: A meta-analysis. Exceptional Children, 52, 417-424.

Dunst, C. (1985). Rethinking early intervention. Analysis and Intervention in Developmental Disabilities, 5, 165-201.

Dunst, C. J., Jenkins, V., & Trivette, C. M. (1984). The family support scale: Reliability and validity. Journal of Individual, Family, and Community Wellness, 1, 45-52.

Dunst, C. J., & Leet, H. E. (1985). Family Resource Scale. Morganton, NC: Western Carolina Center.

Dunst, C. J., & Leet, H. E. (1987). Measuring the adequacy of resources in households with young children. Child: Care, Health, and Development, 13, 111-125.

Dunst, C. J., Snyder, S. W., & Mankinen, M. (1989). Efficacy of early intervention. In M. C. Wang, M. C. Reynolds, & H. J. Walberg (Eds.), Handbook of Special Education, 3, 259-294.

Dunst, C. J., & Trivette, C. M. (1986). Family Support Scale: Supplemental scoring instruction. Unpublished manuscript, Family, Infant and Preschool Program, Western Carolina Center, Morgantown, NC.

Dunst, C. J., Trivette, C. M., Hamby, D., & Pollock, B. (1990). Family systems correlates of the behavior of young children with handicaps. Journal of Early Intervention, 14, 204-218.

Dyson, L., & Fewell, R. R. (1986). Stress and adaptation in parents of young handicapped and nonhandicapped children: A comparative study. Journal of the Division for Early Childhood, 10(1), 25-35.

Fewell, R. R. (1984, March). Sources of social support for mothers of children with Down syndrome. Paper presented at the Conference on Mental Retardation on Research and Development Disabilities, Gatlinburg, TN.

Fruge, E., & Adams, C. (1992). Chronic illness and family systems. In J. van Eys, D. R. Copeland, & E. R. Davidson (Eds.) Teaching more than medicine (pp.). Houston: MD Anderson Cancer Center.

Gorsuch, R. L. (1983). Factor analysis (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Joreskog, K. G., & Sorbom, D. (1989). LISREL 7: A guide to the program and applications (2nd ed.). Chicago: SPSS Inc.

McCubbin, H. I., Patterson, J. M., & Wilson, L. R. (1983). Family Inventory of Live Events and Changes. Testing instrument, Family Social Science, University of Minnesota, St. Paul.

Newborg, J., Stock, J., Wnek, F., Guidubaldi, J., & Svinicki, A. (1984). Battelle Developmental Inventory. Allen, TX: DLM Teaching Resources.

Olson, D. H., Portner, J., & Lavee, Y. (1985). Family Adaptability and Cohesion Evaluation Scales--III. Testing manual, Family Social Science, University of Minnesota, St. Paul.

Simeonsson, R. (1981). Carolina Record of Individual Behavior. Unpublished scale, Frank Porter Graham Child Development Center, University of North Carolina, Chapel Hill.

Taylor, M. J. (1995). A psychometric evaluation of five commonly used measures of family functioning and how they correlate with development of children with disabilities. Unpublished doctoral dissertation, Utah State University, Logan.

White, K. R., Casto, G., Mott, S. E., Barnett, W. S., Pezzino, J., Lowitzer, A. C., Eiserman, E. D., Wingate-Corey, T., Immel, M., & Innocenti, M. S. (1987). 1986-87 annual report of the longitudinal studies of the effects and cost of early intervention for handicapped children (Contract #800-85-0173). Early Intervention Research Institute, Utah State University, Logan. (ERIC Clearinghouse on Handicapped and Gifted Youth #ED 293 241)